

Summary of Results of Charbert Hydrogen Sulfide Monitoring August 3 - 10, 2004

The Rhode Island Department of Environmental Management (RI DEM) is currently operating a continuous hydrogen sulfide monitor at 16 River Street in Alton, which is north of the lagoons at the Charbert facility. The monitors at that location ran continuously during the period of August 3 - 10, 2004.

Charbert began operation of aerators in its active lagoon, Lagoon 1, on July 27th in an attempt to reduce anaerobic degradation and thus reduce hydrogen sulfide formation. The hydrogen sulfide monitors were operated for 46 days in June and July before the aerators began operation. During that period, hydrogen sulfide levels rose above 10 ppb during 38 days (83%) and above 30 ppb on 28 days (61%). Concentrations at or exceeding 90 ppb were observed on four days during that period.

During the fourteen days after the aerator began operating, hydrogen sulfide levels exceeded 10 ppb during only one period, the night of Thursday, July 30th – Friday, July 31st, when levels peaked at 29 ppb. No levels above 30 ppb have been observed.

The highest concentration recorded during the most recent sampling period, August 3rd to 10th, was 9 ppb, which was recorded at 8:11 AM on Sunday, August 8th. The highest one-hour average concentration was 5 ppb. The only other concentration during that period above 5 ppb was a reading of 7 ppb at 8:01 AM on Saturday, August 7th. Note that on both of these occasions the wind was from the west to northwest, not from the direction of the lagoons. Before the operation of the aerator, the highest levels were recorded when the wind was from the south – southwest or when calm conditions were present.

The concentrations measured at River Street since the beginning of the operation of the monitor and by a monitor on Woodville-Alton Road which has since been discontinued are displayed in Table I below. Despite the occurrence of wind conditions that would previously have resulted in elevated hydrogen sulfide concentrations in the neighborhood, concentrations have remained low since the aerators began operating.

Residents have not reported hydrogen sulfide odors since the aerator began operating. However, there have been sporadic reports of a burning oil odor, particularly during the July 29th-30th period and during the evening of August 7th. Neighbors have also reported experiencing symptoms of respiratory irritation during the past week.

A representative of RI DEM observed an odor described as a decomposition odor near the aerated lagoon and in the neighborhood on July 30th. As discussed in the previous update, an ambient air sample taken in the neighborhood on the afternoon of July 30th did not contain elevated levels of the target volatile organic compounds analyzed. However, the laboratory identified in the sample three aldehyde compounds- butanal, hexanal and pentanal- which are only occasionally seen in ambient air samples in the State. Since aldehyde compounds are associated with a pungent odor, there may be a link between these substances and the odor reported in the neighborhood.

Table I Maximum Hydrogen Sulfide Levels

| Monitor | Date | Maximum 15-minute Reading | Maximum 1-hour Level | Maximum 24-hour Level |
|--------------------|----------------|---------------------------|--|--|
| | | | Nuisance Air Quality >2 - <100 ppb Moderate Air Quality 100 - <1000 ppb | Nuisance Air Quality >2 - <30 ppb Moderate Air Quality 30 - <70 ppb |
| River Street | 6/7– 6/14/04 | 78 ppb | 49 ppb | 7 ppb |
| | 6/15 – 6/21/04 | 44 ppb | 29 ppb | 7 ppb |
| | 6/21 – 6/28/04 | 90 ppb* | 79 ppb* | 15 ppb |
| | 6/28 – 7/7/04 | 90 ppb* | 78 ppb* | 16 ppb |
| | 7/7 – 7/12/04 | 45 ppb | 33 ppb | 7 ppb |
| | 7/16 – 7/26/04 | 90 ppb* | 86 ppb* | 16 ppb |
| | 7/27**– 8/3/04 | 29 ppb | 23 ppb | 3 ppb |
| | 8/3 – 8/10/04 | 9 ppb | 5 ppb | 0.4 ppb |
| Woodville-Alton Rd | 5/13 – 6/7/04 | 6 ppb | 2 ppb | 0.2 ppb |
| | 6/6 – 6/14/04 | 27 ppb | 19 ppb | 3 ppb |
| | 6/15 – 6/21/04 | 10 ppb | 5 ppb | 1 ppb |
| | 6/22 – 6/28/04 | 16 ppb | 13 ppb | 2 ppb |
| | 6/28 – 7/7/04 | 39 ppb | 28 ppb | 2 ppb |
| | 7/7 – 7/15/04 | 12 ppb | 7 ppb | 1 ppb |

*Due to the limitations of the instrumentation, concentrations during these periods may have been higher than these values.

**Aerator began operation on 7/27/04.

Hydrogen sulfide monitoring is continuing at the River Street location. The monitor may be moved in the near future in response to requests from neighbors. For more information about sampling results, contact Barbara Morin at 222-4700, ext. 7012.